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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/028,001	12/20/2001	Leonard Forbes	1303.035US1	2627

21186 7590 10/31/2002

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EXAMINER

PHAM, LY D

ART UNIT	PAPER NUMBER
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2818

DATE MAILED: 10/31/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/028,001

Applicant(s)

FORBES ET AL.

Examiner

Ly D Pham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-83 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 1-83 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

DETAILED ACTION

Election/Restrictions

1. This application contains claims directed to the following patentably distinct species of the claimed invention:

Group I, drawn to claims 1 – 8, which claim a p-channel depletion mode floating gate transistor, including: a first source/drain region and second source/drain region separated by a depletion mode p-type channel region in an n-type substrate.

Group II, drawn to claims 9 – 16, which claim a vertical, p-channel depletion mode non-volatile memory cell, including: a first source/drain region formed on a substrate; a second source/drain region formed on the body region.

Group III, drawn to claims 17 – 22, which claim a non-volatile memory cell, including: a polysilicon floating gate...; a first metal layer...; a second metal layer...; a polysilicon control gate....

Group IV, drawn to claims 23 – 30, which claim a flash memory array, including: a number of sourcelines coupled to the first source/drain regions..., a number of control gate lines coupled to the control gates...; a number of bitlines coupled to the second source/drain regions....

Group V, drawn to claims 31 – 42 and 44 – 55 and 61 – 72, which claim an array of flash memory cells, including: a number of pillars extending outwardly...; a number of buried sourcelines..., a number of bitlines....

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Group VI, drawn to claim 43, which claims a programmable logic array, including: a plurality of input lines...; a plurality of output lines...; one or more arrays having a first logic plane and a second logic plane....

Group VII, drawn to claims 56 – 60, which claim a method of forming a floating gate transistor, including: forming a first source/drain region and a second source/drain regions separated by a p-type channel...; forming an asymmetrical low tunnel barrier integrate insulator ... having a number of small compositional ranges such that gradients can be formed by an applied electric field....

Group VIII, drawn to claims 73 – 79, which claim a method for operating a p-type non-volatile memory cell, including: writing to a floating gate of the p-type non-volatile memory cell ... includes: a first source/drain region and a second source/drain region separated by a p-type channel region in an n-type substrate...; erasing charge from the floating gate....

Group IX, drawn to claims 80 – 83, which claim a method for operating an array of p-channel flash memory cells, including: writing to one or more floating gates for a number of p-type non-volatile memory cells ... includes: a number of pillars extending outwardly...; erasing charge from the one or more floating gates by tunneling....

2. Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claim is generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable

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thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered non-responsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Conclusion

3. A shortened statutory period for response to this action is set to expire 1 (one) month and 0 (zero) day from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned (see MPEP 710.02(b)).

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

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5. Any inquiry concerning this communication on earlier communications from the examiner should be directed to Ly Pham, whose telephone number is 703-305-4862. The examiner can normally be reached on Monday – Friday from 8:30am to 5:00pm, alternate Friday off. The examiner's supervisor, David Nelms, can be reached at 703-308-4910. The fax number for the organization where this application or proceeding is assigned is 703-308-7724.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Ly Pham

June 20, 2002


HOAI HO
PRIMARY EXAMINER